



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,113	09/19/2001	Manabu Nakamura	2001_1320A	9604
513	7590	12/16/2004	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P.			AHN, SAM K	
2033 K STREET N. W.			ART UNIT	
SUITE 800			PAPER NUMBER	
WASHINGTON, DC 20006-1021			2637	

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/955,113

Applicant(s)

NAKAMURA ET AL.

Examiner

Sam K. Ahn

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 09/22/00. It is noted, however, that applicant has not filed a certified copy of the 2000-289069 application as required by 35 U.S.C. 119(b).

### ***Drawings***

2. Figures 11-13 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2,3,6,9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura, USP 5,974,040.

Regarding claims 1 and 3, Kimura teaches a demodulation method and an apparatus for establishing synchronization from a received signal (IN in Fig.1 and Fig.3B) that contains a synchronization establishment signal (preamble in Fig.3A resulting in s13 in Fig.3B) wherein the change in amplitude periodically alternates between two values, and demodulating said received signal (note col.3, lines 38-44), the demodulation method comprising a step of establishing synchronization from said received signal (IN) based on the timing of changes in the two values of the change in amplitude of the synchronization establishment signal contained in the received signal (Tm in Fig.3B is used for synchronizing wherein the change in value of s13 triggers and generates the Tm) by the positive/negative change timing detection means (12,13 in Fig.1), and demodulating said received signal. Although Kimura does not explicitly teach wherein the two values are positive and negative. Kimura, however, teaches two values of having a zero and a positive value.(note col.4, lines 51-57). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide a positive and negative value by further attenuating the s13 signal. Applicant has not disclosed that the signal having a positive/negative provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with a zero and positive value because the synchronization could just as well be

performed since two values can be properly distinguished in order to generate the Tm. Therefore, it would have been obvious to one of ordinary skill in this art to modify Kimura's synchronization establishment signal with to obtain the invention as specified in claims 1 and 3.

Regarding claims 2 and 6, Kimura teaches all subject matter claimed, as applied to claim 1 or 3. Kimura further teaches synchronization is established from a plurality of received signals (wherein receiving slots 1 ~ 4 from different mobile stations, note col.7, line 59 – col.8, line 5, each having its preamble) are each synchronized for each received signal and each of said received signal is demodulated (wherein the step of demodulating is explained above).

Regarding claims 9 and 10, Kimura teaches all subject matter claimed, as applied to claim 1 or 3. Kimura further teaches a preamble pattern wherein 1001 is repeated in  $\pi/4$ -shift QPSK (see Fig.3A and note col.4, lines 41-42) is used as the synchronization establishment signal (wherein Tm is generate from the IN signal in Fig.3B), and a burst signal (note col.2, lines 1-11) containing said preamble pattern is used as the received signal.

4. Claims 4,5,7,8,11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura, USP 5,974,040 in view of Ejzak et al, USP 6,069,883 (Ejzak).

Regarding claims 4 and 5, Kimura teaches a demodulation method and an apparatus for establishing synchronization from a received signal (IN in Fig.1 and Fig.3B) that contains a synchronization establishment signal (preamble in Fig.3A resulting in s13 in Fig.3B) wherein the change in amplitude periodically alternates between two values, and demodulating said received signal (note col.3, lines 38-44), the demodulation method comprising a step of establishing synchronization from said received signal (IN) based on the timing of changes in the two values of the change in amplitude of the synchronization establishment signal contained in the received signal (Tm in Fig.3B is used for synchronizing wherein the change in value of s13 triggers and generates the Tm) by the positive/negative change timing detection means (12,13 in Fig.1), and demodulating said received signal. Although Kimura does not explicitly teach wherein the two values are positive and negative. Kimura, however, teaches two values of having a zero and a positive value.(note col.4, lines 51-57). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide a positive and negative value by further attenuating the s13 signal. Applicant has not disclosed that the signal having a positive/negative provides an advantage, is used for a particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with a zero and positive value because the synchronization could just as well be performed since two values can be properly distinguished in order to generate the Tm. Therefore, it would have been obvious to one of ordinary skill in this art

to modify Kimura's synchronization establishment signal with to obtain the invention as specified in claims 1 and 3.

Although Kimura teaches wherein the elements are comprised in a base station (note col.3, lines 64-65, reads on the limitation of a modem in which a base station inherently comprises a combination of modulator and demodulator) comprising an antenna (1 in Fig.4), transmission means (20,19) and receiving means (elements in Fig.1), does not explicitly teach the base station comprising control means. Ejzak teaches antenna (301,306 in Fig.3) transmitting and receiving means (305,302) and inherently modulating means for modulating the signals to transmit, in a base station and communicating between the base station and mobile stations (see Fig.12) wherein the base station is further connected to external apparatus or packet or circuit switched network (1203 in Fig.12) communicated by control means (303 in Fig.3) for communicating the signals exchanged with the mobile station to the external apparatus. Therefore, it would have been obvious to one skilled in the art at the time of the invention to combine Kimura and Ejzak by having Kimura's synchronization means in the receiver of Ejzak and thus establish fast synchronization by detecting the preambles in the received signal, and further communicate the signals exchanged to the packet or switched network for the purpose of transceiving mobile station's signals to the data and switched network, and thus connect the mobile station to a landline phone and the internet.

Regarding claims 7 and 8, Kimura in view of Ezjak teach all subject matter claimed, as applied to claim 4 or 5. Kimura further teaches synchronization is established from a plurality of received signals (wherein receiving slots 1 ~ 4 from different mobile stations, note col.7, line 59 – col.8, line 5, each having its preamble) are each synchronized for each received signal and each of said received signal is demodulated (wherein the step of demodulating is explained above).

Regarding claims 11 and 12, Kimura teaches all subject matter claimed, as applied to claim 4 or 5. Kimura further teaches a preamble pattern wherein 1001 is repeated in  $\pi/4$ -shift QPSK (see Fig.3A and note col.4, lines 41-42) is used as the synchronization establishment signal (wherein  $T_m$  is generate from the IN signal in Fig.3B), and a burst signal (note col.2, lines 1-11) containing said preamble pattern is used as the received signal.

### ***Allowable Subject Matter***

5. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. The following is a statement of reasons for the indication of allowable subject matter:  
Present application discloses method and apparatus of synchronizing received signal in a base station wherein the received signal comprises preamble. The



receiver in the base station detects the preamble and generates timing signal.

Closest prior art, Kimura, teaches all subject matter claimed. However, Kimura does not explicitly teach the configuration of a lowpass filter, polarity bit converter, change point extraction circuit, change point measurement circuit and clock synchronization establishment circuit as illustrated in Fig.4.

### **Conclusion**

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

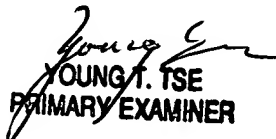
Boccuzzi and Sato teach generation of synchronization signal by measuring the amplitude of the received signal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn  
12/7/04

  
YOUNG T. TSE  
PRIMARY EXAMINER